

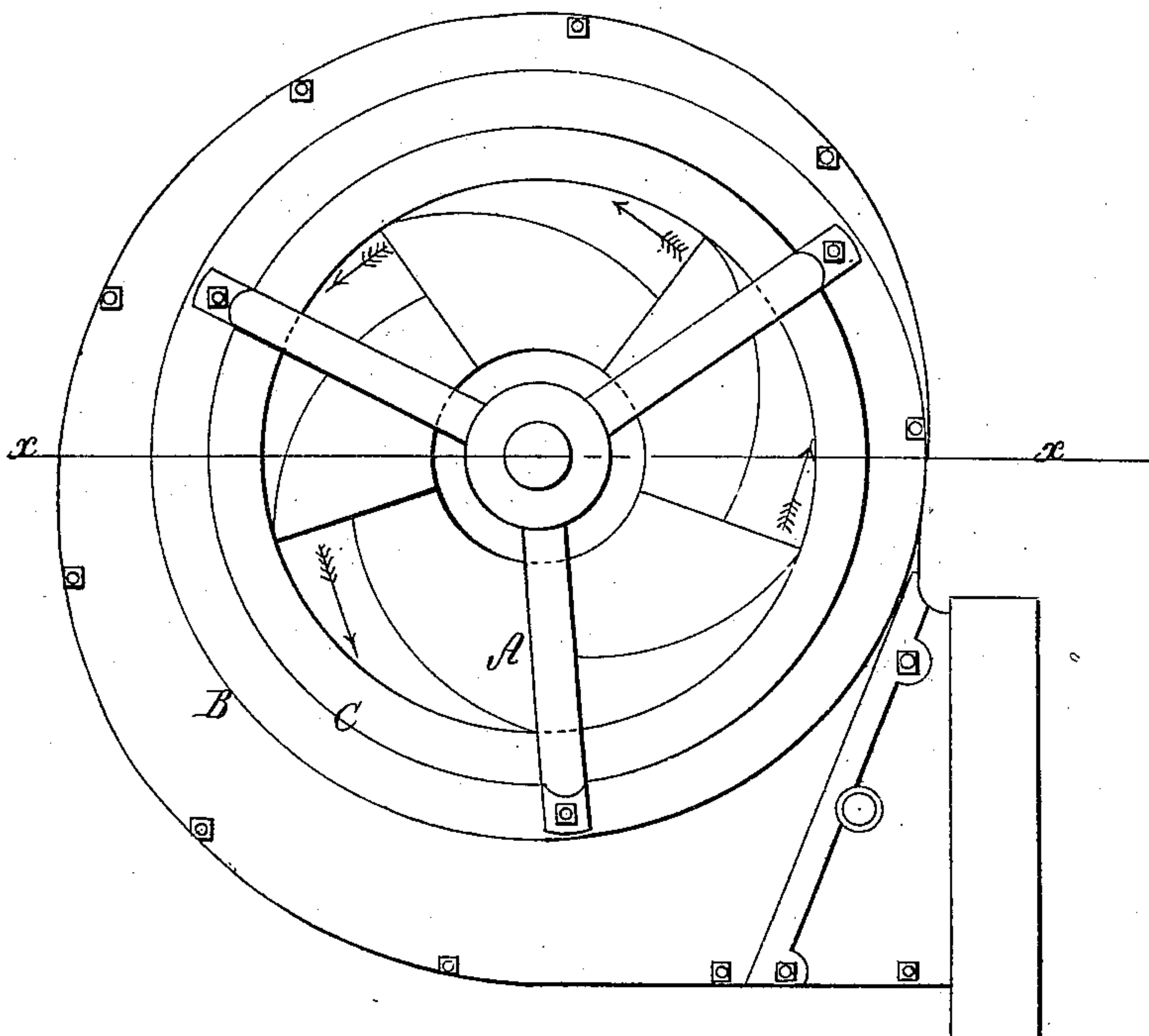
*G. Talcott,*

*Water Wheel,*

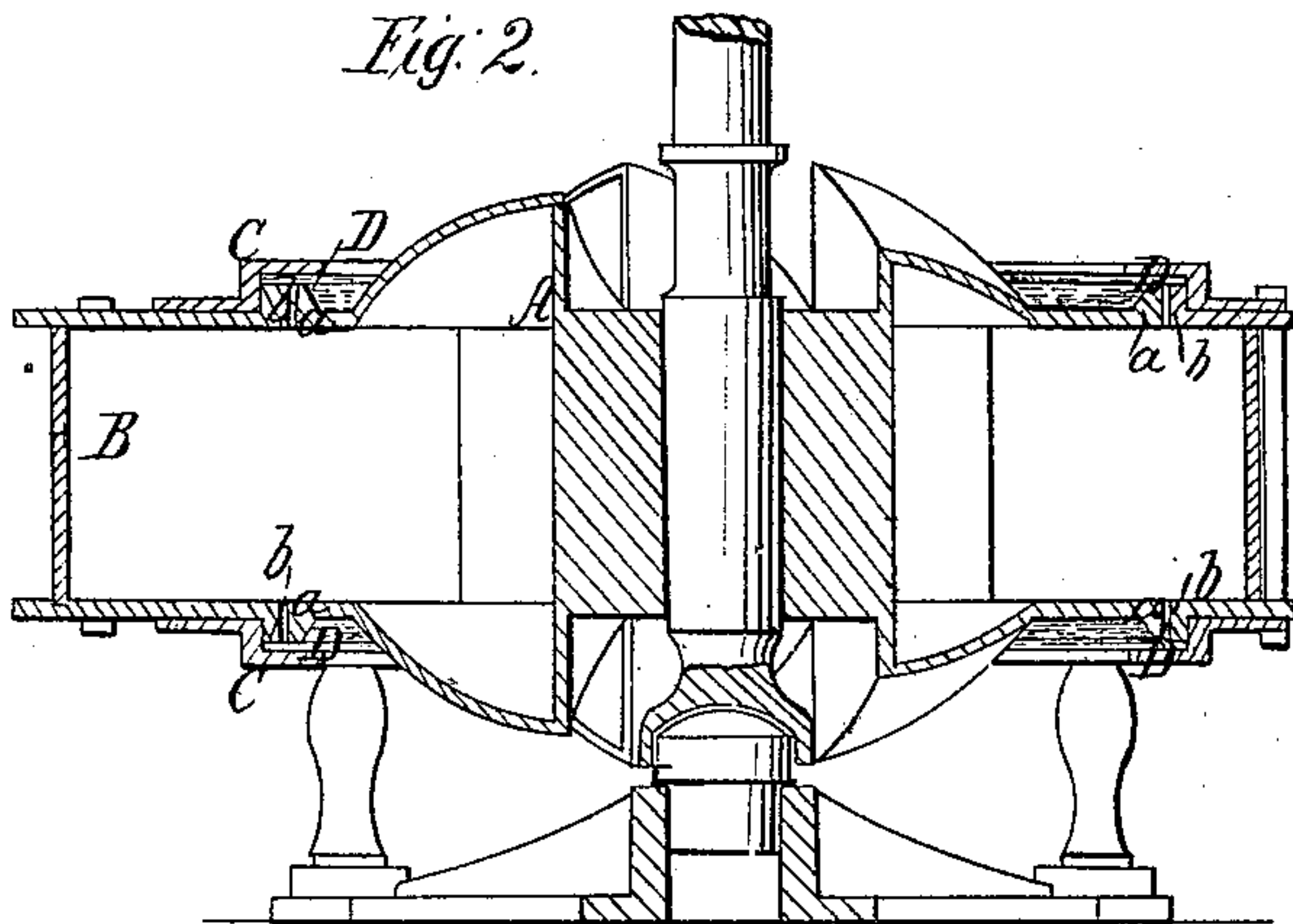
*Nº 51,760,*

*Patented Dec. 26, 1865.*

*Fig. 1.*



*Fig. 2.*



*Witnesses;*  
*W. A. Ames,*  
*W. C. Corbridge*

*Inventor;*  
*Geo. Talcott*  
*By William H. R.*  
*att.*

# UNITED STATES PATENT OFFICE.

GEORGE TALCOT, OF NEW YORK, N. Y.

## IMPROVEMENT IN TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. 51,760, dated December 26, 1865.

*To all whom it may concern:*

Be it known that I, GEORGE TALCOT, of the city, county, and State of New York, have invented a new and useful Improvement in Turbine Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan or top view of a turbine water-wheel provided with my invention; Fig. 2, a vertical section of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

Water-wheels which are fitted within scrolls, helices, or cylindrical water guides or boxes all leak in a greater or less degree at the joints or junction of the wheel with the scroll, helix, or box, in consequence of a tight joint not being formed in order to avoid friction. This leakage of course serves to diminish the efficiency of the wheel; and the object of this invention is to obtain a tight joint without causing friction, and to this end I attach a flange to the inner edges of the scroll, helix, or box, either at top or bottom, or both, said flanges being of such a shape as to form annular boxes, in which water, when the wheel is at work or in motion, is retained directly over the joints by centrifugal force generated by the rotation of the wheel, and loose joints admitted, which will not cause any friction, and at the same time prevent the escape or leakage of water therefrom.

A represents a water-wheel, which in this instance is represented with buckets constructed so as to discharge the water both at the top and bottom of the wheel.

B represents the scroll in which the wheel is

placed, the inner edges of the former being near the edges of the rims *a a* of the wheel, but not to bear against them so as to cause friction. (See Fig. 2.) These parts do not require a minute description, as they are not new and are well known to all conversant with turbine water-wheels.

To the top and bottom of the scroll B, at its inner edges, there are secured flanges C C, which extend over the joints *b* between the rims *a* of the wheel and the inner edges of the scroll, said flanges being of the shape shown in Fig. 2, and forming annular water-boxes D all around and over the joints *b*. When the wheel A is at work or in motion the boxes D will be kept filled with water owing to the centrifugal force generated by the rotation of the wheel. The pressure of the water in the annular boxes D, which is due to the centrifugal force above mentioned, effectually prevents the escape of water from the joints *b*, even when the latter are sufficiently loose to avoid any friction whatever between the rims *a a* and the inner edges of the scroll, helix, or box B.

Thus by this very simple and efficient device, quite inexpensive to apply, a very important result is obtained—to wit, secure but loose joints, which prevent the leakage or escape of water, and at the same time obviate all friction at the points specified.

I claim as new and desire to secure by Letters Patent—

The annular water-box D, placed over the joints formed by the junction of the periphery or rims of the wheel and the inner edges of the scroll, helix, or box in which the wheel is placed or fitted, substantially as and for the purpose herein set forth.

GEO. TALCOT.

Witnesses:

M. M. LIVINGSTON,  
C. L. TOPLIFF.